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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,217	10/31/2003	Karen J. Smiley	ABDT-0581/B030090	2797

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EXAMINER	
SHARON, AYAL I	
ART UNIT	**PAPER NUMBER**
2123	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/29/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/699,217	SMILEY ET AL.	
	Examiner	Art Unit	
	Ayal I. Sharon	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/10/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *See Continuation Sheet*.

Continuation of Attachment(s) 6). Other: 37 CFR 1.105 - Requirement for Information.

DETAILED ACTION

Introduction

1. Claims 1-43 of U.S. Application 10/699,217 filed on 10/31/2003 are currently pending.
2. A 37 C.F.R. § 1.105 Requirement for Information accompanies this Office Action.
3. Applicants' response to this Office Action must also address the issues raised in the accompanying Requirement for Information.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. **Claims 1-43 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.**
6. The fundamental test for patent eligibility is to determine whether the claimed invention produces a "**useful, concrete and tangible result.**" See State Street Bank & Trust Co. v. Signature Financial Group Inc., 149 F. 3d 1368, 47 USPQ2d 1596 (Fed. Cir. 1998) and AT&T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 50 USPQ2d 1447 (Fed. Cir. 1999). In these decisions, the court found that the claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result."

7. Independent claims 1 and 35 are directed to "determin[ing] interrelationships". This claimed subject matter lacks a practical application of a judicial exception (law of nature, abstract idea, naturally occurring article/phenomenon) since it fails to produce a useful, concrete and tangible result. Dependent claims 2-18, 32-34, and 36-40 inherit this defect.
8. Independent claims 19, 41, and 43 are directed to "correlating variables." This claimed subject matter lacks a practical application of a judicial exception (law of nature, abstract idea, naturally occurring article/phenomenon) since it fails to produce a useful, concrete and tangible result. Dependent claims 20-31 inherit this defect.
9. The claimed subject matter does not produce a useful or tangible result.
    a. A useful result is missing because the claimed subject matter fails to sufficiently reflect at least one practical utility set forth in the descriptive portion of the specification. More specifically, while the described practical utilities in the specification are directed to maximizing the reliability and efficiency, and minimizing costs of transformer designs (see para. [0009] of the specification), the claimed subject matter relates ONLY to "determin[ing] interrelationships" and "correlating variables."
    b. A tangible result is missing because the claimed subject matter fails to produce a result that is limited to having real world value rather than a result that may be interpreted to be abstract in nature as, for example, a thought, a computation, or manipulated data. More specifically, the

claimed subject matter provides for "determin[ed] interrelationships" and "correlate[ed] variables." This produced result remains in the abstract and, thus, fails to achieve the required status of having real world value.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. The prior art used for these rejections is as follows:

12. Geromel, Luiz H. and Carlos R. Souza. "The Application of Intelligent Systems in Power Transformer Design." (Hereinafter "**Geromel**").

13. The claim rejections are hereby summarized for Applicant's convenience. The detailed rejections follow.

14. Claims 1-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Geromel.

15. In regards to Claim 1, Geromel teaches the following limitations:

> *1. A method for generating a transformer model, comprising:*
> *defining a data base by selecting a first and a second set of parameters for inclusion in the data base, the first set of parameters being representative of at least one of as-designed and as-built transformer data,*

(See Geromel, especially: See Section 3.2. See also Fig.2, especially the item titled "Project initial parameters (α, B_N, winding height and current density)" See also Section 4.1, which teaches "The information available for this research is a

database with 300 actual transformer projects" and "The remaining part of the database was applied in the ANN required tests.")

the second set of parameters being representative of transformer performance data;

(See Geromel, especially: See Section 3.2. See also Fig.2, especially the item titled "Wished Final parameters (losses, impedence and temperature)" on the left side of the figure, and items on the right side of the figure, such as "Prediction of Core Losses", "Prediction of Winding Losses", "Prediction of the Temperature", and "Prediction of the Impedence".)

storing data from a plurality of transformers in the data base, the data from a plurality of transformers corresponding to the first and second sets of parameters; and

(See Geromel, especially: Section 4.1, which teaches "The remaining part of the database was applied in the ANN required tests.")

determining interrelationships between the first and second sets of parameters by analyzing the data from a plurality of transformers using multivariate statistical analysis:

(See Geromel, especially: Figures 3-8 and associated text).

16. In regards to Claim 2, Geromel teaches the following limitations:

2. The method of claim 1, wherein determining interrelationships between the first and second sets of parameters by analyzing the data from a-plurality of transformers using multivariate statistical analysis comprises:
identifying a first set of variations between the data from a plurality of transformers corresponding to the first set of parameters;
identifying a second set of variations between the data from a plurality of transformers corresponding to the second set of parameters; and correlating the first and second set of variations.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

17. In regards to Claim 3, Geromel teaches the following limitations:

3. The method of claim 1, wherein determining interrelationships between the first and second sets of parameters by analyzing the data from a plurality-of transformers - using multivariate statistical analysis comprises

determining interrelationships between the first and second sets of parameters by analyzing the data from a plurality of transformers using cluster analysis.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

18. In regards to Claim 4, Geromel teaches the following limitations:

4. The method of claim 1, wherein determining interrelationships between the first and second sets of parameters by analyzing, the data from a plurality of transformers using multivariate statistical analysis comprises determining interrelationships between the first and second sets of parameters by analyzing the data from a plurality of transformers using decision-tree analysis.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

19. In regards to Claim 5, Geromel teaches the following limitations:

5. The method of claim 1, wherein the transformer performance data comprises test results.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

20. In regards to Claim 6, Geromel teaches the following limitations:

6. The method of claim 5, wherein the test results comprise measurements relating to at least one of load loss, impedance, transformation ratio, turn-to-turn faults,, high-potential test results, double induced test results, impulse test results, heat run test results, sound level, and short circuit test results.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

21. In regards to Claim 7, Geromel teaches the following limitations:

7. The method of claim 1, wherein the data base comprises a first table for storing the data corresponding to the first set of data parameters, and a second table for storing the data representative of the second set of data parameters.

The use of tables is store data is inherent to all databases.

22. In regards to Claim 8, Geromel teaches the following limitations:

> *8. The method of claim 7, wherein the data base comprises a plurality of data packages each, corresponding to a different one of the plurality of transformers and each comprising one of the first tables and one of the second tables.*

The use of tables is store data is inherent to all databases.

23. In regards to Claim 9, Geromel teaches the following limitations:

> *9. The method of claim 7, wherein the data base further comprises a third table for storing the data representative of the first set of data parameters, and the first, second, and third tables are arranged in a star schema.*

The use of tables is store data is inherent to all databases.

24. In regards to Claim 10, Geromel teaches the following limitations:

> *10. The method of claim 1, wherein the as-designed transformer data comprises design specifications and the as-built transformer data comprises as-built specifications.*

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

25. In regards to Claim 11, Geromel teaches the following limitations:

> *11. The method of claim 1, wherein the first set of parameters includes data relating to a transformer manufacturing environment.*

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

26. In regards to Claim 12, Geromel teaches the following limitations:

> *12. The method of claim 11, wherein the first set of parameters includes identifying information relating to at least one of a manufacturing location, a winding machine used to wind a transformer core, a cutting machine used to cut material used in a transformer core, a retooling date for*

transformer manufacturing equipment, and a material batch used to manufacture a transformer component.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

27. In regards to Claim 13, Geromel teaches the following limitations:

13. The method of claim 1, wherein the first set of parameters includes data relating to a transformer testing environment.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

28. In regards to Claim 14, Geromel teaches the following limitations:

14. The method of claim 13, wherein the first set of parameters includes data relating to a calibration data of test equipment.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

29. In regards to Claim 15, Geromel teaches the following limitations:

15. The method of claim 1, wherein the first set of parameters includes data relating cost penalties associated with transformer performance shortfalls.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

30. In regards to Claim 16, Geromel teaches the following limitations:

16. The method of claim 1, wherein the as-designed and as-built transformer data comprise information relating to at least one of design number; design version; grade. of core material; core mass; core annealing; tank type; conductor size; conductor material; and type of conductor.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

31. In regards to Claim 17, Geromel teaches the following limitations:

17. The method of claim .16, wherein the data base comprises:
a first table having the transformer performance data stored therein;
a second table having, the information relating to the design number ands design version stored therein;
a third table having the information relating to the grade of core material, core mass, and core annealing stored therein;
a fourth table having the information relating to the tank type stored therein; and a fifth table having the information relating to the conductor size, conductor material, and type of conductor stored therein.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text. The use of tables is store data is inherent to all databases.)

32. In regards to Claim 18, Geromel teaches the following limitations:

18. The method of claim 1, wherein the data base is structured as a cube.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

33. In regards to Claim 19, Geromel teaches the following limitations:

19. A method for generating a transformer model, comprising:
creating a data base for storing a first and a second set of data from a first previously-built transformer and a first and a second set of data from a second previously built transformer;

(See Geromel, especially: See Section 3.2. See also Fig.2, especially the item titled "Project initial parameters (α, B_N, winding height and current density)." See also Section 4.1, which teaches "The information available for this research is a database with 300 actual transformer projects" and "The remaining part of the database was applied in the ANN required tests.")

inputting the first and second sets of data from the first and second transformers into the data base; and

(See Geromel, especially: See Section 3.2. See also Fig.2, especially the item titled "Wished Final parameters (losses, impedence and temperature)" on the left side of the figure, and items on the right side of the figure, such as "Prediction of Core Losses", "Prediction of Winding Losses", "Prediction of the Temperature", and "Prediction of the Impedence".)

correlating variations between the first sets of data from the first and second previously-built transformers with variations between the

second sets of data from the first and. second previously-built transformers.

(See Geromel, especially: Figures 3-8 and associated text).

34. In regards to Claim 20, Geromel teaches the following limitations:

20. The method of claim 19, wherein correlating variations between the first sets of data from the first and second previously-built transformers with variations between the second sets of data from the first and second previously-built transformer comprises correlating. the variations between the first sets of data from the first and, second previously-built transformers with the variations between, the second sets of data from the first and second previously-built transformer using multivariate statistical analysis.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

35. In regards to Claim 21, Geromel teaches the following limitations:

21. The method of claim 20, wherein correlating the variations between the first sets of data from the first and second previously-built transformers with the variations between the second sets of data from the first and second previously-built transformer using cluster analysis.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

36. In regards to Claim 22, Geromel teaches the following limitations:

22. The method of claim 20, wherein correlating the variations between the first sets of data from the first and second previously-built transformers with the variations between the second sets of data from the first and second previously-built transformer using decision-tree analysis.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

37. In regards to Claim 23, Geromel teaches the following limitations:

23. The method of claim 19, wherein the first sets of.data for the first and . second transformers comprise transformer performance data.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

38. In regards to Claim 24, Geromel teaches the following limitations:

24. The method of claim 23, wherein the transformer performance data comprises test results.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

39. In regards to Claim 25, Geromel teaches the following limitations:

25. The method of claim 19, wherein the second sets of data comprise at least one of as-designed- and as-built transformer data.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

40. In regards to Claim 26, Geromel teaches the following limitations:

26. The method of claim 25, wherein the as-designed transformer data . comprises design specifications and the as-built transformer data comprises as-built specifications.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

41. In regards to Claim 27, Geromel teaches the following limitations:

27. The method of claim 25, wherein the second sets of data include data relating to a transformer manufacturing environment.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

42. In regards to Claim 28, Geromel teaches the following limitations:

28. The method of claim 27, wherein the second sets of data include identifying information relating to at least one of a manufacturing location, a winding machine used to wind a transformer core, a cutting machine used to cut material used in a transformer core, a retooling date for transformer manufacturing equipment, and a material batch used to manufacture a transformer component.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

43. In regards to Claim 29, Geromel teaches the following limitations:

29. The method of claim 19, wherein the second sets of data include data relating to a transformer testing environment.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

44. In regards to Claim 30, Geromel teaches the following limitations:

30. The method of claim 29, wherein the second sets of data include data relating to a calibration data of test equipment.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

45. In regards to Claim 31, Geromel teaches the following limitations:

31. The method of claim 19, wherein the second sets of data include data relating cost penalties associated with transformer performance shortfalls.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

46. In regards to Claim 32, Geromel teaches the following limitations:

32. A method for validating a design for a transformer, comprising:
inputting data representing design specifications of the transformer into a transformer model generated according to the method of claim 1;
receiving data from the transformer model representing predicted performance characteristics of the transformer; and
comparing the predicted performance characteristics to predetermined performance requirements for the transformer.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

47. In regards to Claim 33, Geromel teaches the following limitations:

33. A method for optimizing a first design parameter of a transformer, comprising:

(a) inputting a value for the first design parameter and values for a plurality of other design parameters of the transformer into a transformer model generated in accordance with the method of claim 1;

(b) receiving data from the transformer model representing predicted. performance characteristics of the transformer based on the first design parameter and the , plurality of other design parameters for the transformer;

(c) comparing the data representing the predicted performance characteristics of the transformer to predetermined performance requirements for the transformer; and

(d) varying the value of the first design parameter and repeating steps (a)-(c) until the predicted performance characteristics do not satisfy the predetermined performance requirements.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

48. In regards to Claim 34, Geromel teaches the following limitations:

34. A method for designing a transformer, comprising:

inputting data representative of one or more performance-related requirements of the transformer into a transformer model created in accordance with claim 1; and

receiving data from the transformer model representative of predicted design specifications for the transformer necessary to satisfy the one or more performance-related requirements.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

49. In regards to Claim 35, Geromel teaches the following limitations:

35. A computing system for generating a transformer model, comprising a computer having an application processing and storage area, the application processing and storage area comprising a computing engine and- a data base for storing data from a plurality of transformers, the data from a plurality of transformers corresponding to a first and a second set of parameters, the first set of parameters being representative of at least one of as-designed and as-built transformer data, the second set of parameters being representative of transformer performance data, wherein the computing engine is configured to determine interrelationships

between the first and second sets of parameters by analyzing the data from a plurality of transformers using multivariate statistical analysis.

(See Geromel, especially: Figures 3-8 and associated text. See also Section 3.2, and Fig.2, especially the item titled "Project initial parameters (α, B_N, winding height and current density)." See also Section 4.1, which teaches "The information available for this research is a database with 300 actual transformer projects" and "The remaining part of the database was applied in the ANN required tests.")

50. In regards to Claim 36, Geromel teaches the following limitations:

36. The system of claim 35, wherein the computing engine is configured to determine interrelationships between the first and second sets of parameters by analyzing the data from a plurality of transformers using cluster analysis.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

51. In regards to Claim 37, Geromel teaches the following limitations:

37. The system of claim 35, wherein the computing engine is configured to determine interrelationships between the first and second sets of parameters by analyzing , the data. from a plurality of transformers using decision-tree analysis.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

52. In regards to Claim 38, Geromel teaches the following limitations:

38. The system of claim 35, wherein the computing engine is configured to determine interrelationships between the first and second sets of parameters by:

identifying a first set of variations between the data from a plurality of transformers corresponding to the first set of parameters;

identifying a second set of variations between the data from a plurality of transformers corresponding to the second set of parameters; and correlating the first and second set of variations.

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text.)

53. In regards to Claim 39, Geromel teaches the following limitations:

> *39. The system of claim 35, wherein the data base comprises a first table for storing the data corresponding to the first set of data parameters, and a second table for storing the data representative of the second set of data parameters.*

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text. The use of tables is store data is inherent to all databases.)

54. In regards to Claim 40, Geromel teaches the following limitations:

> *40. The method of claim 39, wherein the data base comprises a plurality of data packages each corresponding to a different one of the plurality of transformers and each comprising one of the first tables and one of the second tables.*

(See Geromel, especially: Sections 3.2 and 4.1, and also figures 2-8 and the associated text. The use of tables is store data is inherent to all databases.)

55. In regards to Claim 41, Geromel teaches the following limitations:

> *41. A computing system for generating a transformer model, comprising a computer having an application processing and storage area, the application processing and storage area comprising a computing engine and a data base, the data base having stored therein a first and a second set of data from a first previously-built transformer and a first and a second set of data from a second previously-built transformer, the computing engine being configured to correlate variations between the first sets of data from the first and second previously-built transformers with variations between the second sets of data from the first and second previously-built transformers.*

(See Geromel, especially: Figures 3-8 and associated text. See also Section 3.2, and Fig.2, especially the item titled "Project initial parameters (α, B_N, winding height and current density)." See also Section 4.1, which teaches "The information available for this research is a database with 300 actual transformer projects" and "The remaining part of the database was applied in the ANN required tests.")

56. In regards to Claim 42, Geromel teaches the following limitations:

> *42. A method for generating a transformer model using a data base having a first and a second set of parameters included therein, the first set*

of parameters being representative of at least one of as-designed and as-built transformer data, the second set of parameters being representative of transformer performance data, the method comprising:

storing data from a plurality of transformers in the data base, the data from a plurality of. transformers corresponding to the first and second sets of parameters; and

determining interrelationships between the first and second sets of parameters by analyzing the data from a plurality of transformers using multivariate statistical analysis.

(See Geromel, especially: Figures 3-8 and associated text. See also Section 3.2, and Fig.2, especially the item titled "Project initial parameters (α, B_N, winding height and current density)." See also Section 4.1, which teaches "The information available for this research is a database with 300 actual transformer projects" and "The remaining part of the database was applied in the ANN required tests.")

57. In regards to Claim 43, Geromel teaches the following limitations:

43. A method for generating a transformer model using a data base for storing a first and a second set of data from a first previously-built transformer and a first and a second set of data from a second previously-built transformer, the method comprising:

inputting the first and second sets of data from the first and second transformers into the data base; and

correlating variations between the first sets of data from the first and second previously-built transformers with variations between the second sets of data from the first and second previously-built transformers.

(See Geromel, especially: Figures 3-8 and associated text. See also Section 3.2, and Fig.2, especially the item titled "Project initial parameters (α, B_N, winding height and current density)." See also Section 4.1, which teaches "The information available for this research is a database with 300 actual transformer projects" and "The remaining part of the database was applied in the ANN required tests.")

Conclusion

58. The following prior art, made of record and not relied upon, is considered pertinent to applicant's disclosure.

59. References 44, 45 and 46 in the IDS submitted by the applicants on 3/10/2004 are relevant to the instant application because they also pertain to optimization of transformer design by using expert systems and other advanced mathematical techniques. These references are authored by Doulamis et al., Saravolac, and Balma et al., respectively.

60. Co-pending applications that share inventors with the instant application have been checked for double patenting. These co-ending applications are U.S. Patent 7,107,186 and U.S. PG-PUB 2005/0096772, 2005/0097134, and 2006/0053398.

61. U.S. Patent 6,853,939 and 6,549,017 are directed to testing defects in manufactured transformers, as opposed to optimizing transformer design as in the instant application.

62. The following NPL predicts defects in manufactured transformers, as opposed to optimizing transformer design as in the instant application.

63. Mosinski, F. and T. Piotrowski. "New Statistical Methods for Evaluation of DGA Data." IEEE Transactions on Dielectrics and Electrical Insulation. April 2003. Vol.10, Issue 2, pp.260-265.

64. Lee, K.-C. and K.P. Poon. "Statistical Switching Overvoltage Analysis of the First B.C. Hydrophase Shifting Transformer Using the Electromagnetic Transients Program." IEEE Transactions on Power Systems. Nov. 1990. Vol.5, Issue 4, pp.1054-1060.

65. Gulachenski, E.M. and P.M. Besuner. "Transformer Failure Prediction Using Bayesian Analysis." IEEE Transactions on Power Systems. Nov. 1990. Vol.5, Issue 4, pp.1355-1363.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is (571) 272-3714. The examiner can normally be reached on Monday through Thursday, and the first Friday of a bi-week, 8:30 am – 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached at (571) 272-3753.

Any response to this office action should be faxed to (571) 273-8300, or mailed to:

USPTO
P.O. Box 1450
Alexandria, VA 22313-1450

or hand carried to:

USPTO
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center 2100 Receptionist, whose telephone number is (571) 272-2100.

Ayal I. Sharon
Art Unit 2123
December 22, 2006

LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

Introduction

1. Claims 1-43 of U.S. Application 10/699,217 filed on 10/31/2003 are currently pending.
2. An office action accompanies this 37 C.F.R. § 1.105 Requirement for Information.
3. Applicants' response to this Requirement for Information must also address the issues raised in the accompanying non-final Office Action.

37 C.F.R § 1.105 – Requirement for Information

4. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.
5. Applicants have provided the following reference as item 42 in the IDS submitted on 3/10/2004:
    - Cox, D. "Analyzing Transofrmer Data". ("**Cox**").
6. The Cox reference is authored by one of the co-authors, yet is a different inventive entity.
7. The figure on page 3 of the Cox reference is identical to Figure 2 of the instant application.
8. Applicants have not provided a data for the Cox reference.
9. **The Applicants are required to provide the date of the Cox reference.**

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Ayal I. Sharon
Art Unit 2123
December 21, 2006

LEO PICARD
SUPERVISORY PATENT EXAMINER
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